

Assessment and optimization of the impact of the future Belgian offshore wind farms on the bottom fauna using numerical modelling

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Growing number of offshore wind farms (OWF) leaves an imprint on the regional carbon cycle and sediment bed composition by means of fecal pellets coming from biofouling communities. The new Belgian Marine Spatial plan allows construction of OWFs in the close proximity and within the Natura 2000 area; which may lead to negative imprints on its bottom gravel biological communities; intolerant to sedimentation.

Within the project FaCE-IT (Functional biodiversity in a Changing sedimentary Environment: Implications for biogeochemistry and food webs in a managerial setting); we assessed and upscaled the impact of the existing OWFs on the sediment bed and simulated different scenarios of monopile density and energy capacity for the future OWFs in order to assess their regional impact; including on the protected area. As an upscaling tool; the coupled Ocean-Wave-Sediment transport (COAWST) modelling system was implemented for the Southern Bight of the North Sea with an increased resolution on the Belgian Coastal Zone. The sediment bed is represented through different fractions of mud and fine and coarse sands; derived from a product provided by the Flanders Marine Institute (VLIZ). Our results can be used by a broad number of environmental organizations; as well as the construction companies; in order to optimize the impact of the OWF on the environment and preserve marine biodiversity.

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